

REMARKS

Claims 1-20 were pending in this application.

Claims 1-5, 7-12, and 14-19 have been rejected.

Claims 6, 13, and 20 have been objected to.

Claims 1, 7, 8, 13-15, and 20 have been amended as shown above.

Claims 1-20 remain pending in this application.

Reconsideration and full allowance of Claims 1-20 are respectfully requested.

I. ALLOWABLE CLAIMS

The Applicant thanks the Examiner for the indication that Claims 6, 13, and 20 would be allowable if rewritten in independent form to incorporate the elements of their respective base claims and any intervening claims. Because the Applicant believes that the remaining claims in this application are allowable, the Applicant has not rewritten Claims 6, 13, and 20 in independent form.

II. REJECTION UNDER 35 U.S.C. § 103

The Office Action rejects Claims 1-5, 7-12, and 14-19 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,094,198 to Shashua (“*Shashua*”) in view of U.S. Patent No. 6,137,491 to Szeliski (“*Szeliski*”). This rejection is respectfully traversed.

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a *prima facie* case of obviousness. (*MPEP* § 2142; *In re Fritch*, 972 F.2d 1260,

1262, 23 U.S.P.Q.2d 1780, 1783 (*Fed. Cir. 1992*)). The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention is always upon the Patent Office. (*MPEP* § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (*Fed. Cir. 1992*); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (*Fed. Cir. 1984*)). Only when a *prima facie* case of obviousness is established does the burden shift to the Applicant to produce evidence of nonobviousness. (*MPEP* § 2142; *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (*Fed. Cir. 1992*); *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (*Fed. Cir. 1993*)). If the Patent Office does not produce a *prima facie* case of unpatentability, then without more the Applicant is entitled to grant of a patent. (*In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (*Fed. Cir. 1992*); *In re Grabiak*, 769 F.2d 729, 733, 226 U.S.P.Q. 870, 873 (*Fed. Cir. 1985*)).

A *prima facie* case of obviousness is established when the teachings of the prior art itself suggest the claimed subject matter to a person of ordinary skill in the art. (*In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (*Fed. Cir. 1993*)). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. (*MPEP* § 2142).

The Office Action acknowledges that *Shashua* fails to disclose deriving an “infinity homography” for a “selected image pair” from a “known infinity homography” as recited in Claims 1, 8, and 15. (*Office Action, Page 3, Second paragraph*). The Office Action then asserts that *Szeliski* discloses these elements of Claims 1, 8, and 15 and that it would be obvious to modify *Shashua* with *Szeliski*. (*Office Action, Page 3, Second paragraph*).

Szeliski recites a method for reconstructing a 3-D geometry by computing 3-D points of an object or a scene that includes many visible objects using images taken from different viewpoints. (*Abstract*). The cited portion of *Szeliski* recites that an “estimated homography” is generated using two views or images. (*Col. 6, Lines 20-24*). Additional pixels are then added to a first one of the images. (*Col. 6, Lines 24-25*). The “estimated homography” and the additional pixels in the first image are then used to compute additional pixels in a second of the images. (*Col. 6, Lines 26-27*). The original pixels and additional pixels in the two images are then used to calculate an “optimal homography” for the two images. (*Col. 6, Lines 27-30*).

Claim 1 recites that a “known infinite homography” applies to “two images” in an image sequence. Claim 1 also recites that a “selected image pair” includes one of the “two images” associated with the “known infinite homography” and an “additional image.” An “infinite homography” for the “selected image pair” is derived using the “known infinite homography.”

The cited portion of *Szeliski* lacks any mention of using a homography for one pair of images to determine a homography for a different pair of images (where one image is common to both pairs). The cited portion of *Szeliski* simply recites that an estimated homography is computed using two images, pixels are added to the images, and an optimal homography is

computed for the images. Presumably, if a homography is required for a different pair of images in *Szeliski*, the same process would be repeated. The new pair of images would be used to compute an estimated homography, pixels would be added to the new pair of images, and an optimal homography for the new pair of images would be computed.

It is clear here that the cited portion of *Szeliski* simply generates two homographies for the same pair of images. To process a different pair of images, the cited portion of *Szeliski* would generate two homographies for the different pair of images, without using the two homographies previously generated. The cited portion of *Szeliski* lacks any mention that a homography generated for one pair of images is used to generate a homography for another pair of images (where one image is common to both pairs). As a result, the Office Action does not establish that the proposed *Shashua-Szeliski* combination discloses, teaches, or suggests all elements of Claim 1.

For these reasons, the Office Action does not establish a *prima facie* case of obviousness against Claim 1 (and its dependent claims). For similar reasons, the Office Action does not establish a *prima facie* case of obviousness against Claims 8 and 15 (and their dependent claims). Accordingly, the Applicant respectfully requests withdrawal of the § 103 rejection and full allowance of Claims 1-5, 7-12, and 14-19.

III. CONCLUSION

The Applicant respectfully asserts that all pending claims in this application are in condition for allowance and respectfully requests full allowance of the claims.

SUMMARY

If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@davismunck.com*


The Commissioner is hereby authorized to charge any fees connected with this communication (including any extension of time fees) or credit any overpayment to Davis Munck Deposit Account No. 50-0208.

Respectfully submitted,

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Date:

May 16, 2005



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